

Remarks/Arguments

The Examiner is thanked for his careful review of this application. Claims 17-31 are pending after entry of the present Amendment. Claims 1-16 were previously cancelled. Amendments were made to claims 17 and 31. These amendments do not introduce any new matter. This Amendment is being presented in the new format, as suggested by the new proposed Rules.

Rejections under 35 U.S.C. § 102:

The Office has rejected claims 17, 18, 19, 22, and 31 under 35 U.S.C. 102(b) as being anticipated by Patent Abstract of Japan 1-259536 (Japan '536). It is respectfully submitted that Japan '536 fails to identically disclose each and every element of the claimed invention, as defined in independent claims 17 and 31, as amended.

Japan '536 cleans foreign contaminative objects adhered to the surface of the substrate by using ultrasonic vibration circulated with a sharp angle onto a substrate surface disposed at a 90-degree angle with respect to the horizontal plane. In contrast, one of the many features of the claimed invention, as defined in claim 1, is that the wafer engaging rollers are oriented at an angle that is configured to be between 0° to 90°. In contrast, as acknowledged by the Office, the rollers of Japan '536 are defined at 90-degree angles with respect to the horizontal plane.

In the same manner, Japan '536 fails to identically disclose each and every feature of independent claim 31 because the enclosure of the claimed invention has an inner wall that contains a plurality of holes therein. Additionally, the plurality of holes claimed in independent claim 31 is configured to introduce a gas into the enclosure so as to substantially evenly dry the top and bottom top surfaces of the wafer to be processed. As shown in Figures 1 and 2 of Japan '536, the enclosed area of Japan '536 neither includes an inner wall nor a plurality of holes to introduce a gas into the enclosed area so as to substantially evenly dry both sides of the wafer.

Accordingly, amended independent claims 17 and 31 are respectfully submitted to be patentable under 35 U.S.C. § 102(b) over Japan '536. In a like manner, dependent claims 16-19, each of which directly or indirectly depends from independent claim 17 are submitted to be patentable under 35 U.S.C. § 102(b) over Japan '536 for at least the reasons set forth above

regarding the independent claim 17. Similarly, amended independent claim 31 is respectfully submitted to be patentable under 35 U.S.C. § 102(b) over Japan '536. As such, Applicant respectfully requests that the § 102(b) rejections be withdrawn.

Rejections under 35 U.S.C. § 103:

The Office has rejected claim 21 under U.S.C. 103(a), as being unpatentable over Japan '536 in view of Patent Abstract of Japan 11-238713 (Japan '713). Applicant respectfully traverses the Office's rejections and submits that independent claim 17, as amended, is patentable over the cited references, as no combination of the cited prior art would have suggested the claimed invention to one of ordinary skill in the art.

Japan '713 discloses a scrubbing apparatus for cleaning the central and circumferential edge part of a wafer that is being held horizontally during cleaning. As shown, the wafer and the rollers are defined in the horizontal plane while each of the top and bottom surfaces of the wafer is cleaned using a main nozzle and auxiliary nozzle applying fluid onto the wafer surfaces with ultrasonic waves. In this manner, Japan '713 claims to thoroughly clean the periphery and the center of the wafer.

As can be appreciated, Japan '713 does not teach or suggest orienting the wafer at an angle between 0 to 90 degrees, as defined in amended claim 17. Furthermore, there is no suggestion or motivation in Japan '536 to modify the 90-degree angle of the rollers in '536 to an angle between 0 to 90 degrees of the claimed invention.

Additionally, one of ordinary skill in the art will not have arrived at the rollers and wafer defined at angle between 0 to 90 degrees of the claimed invention by modifying the apparatus of Japan '713 using the rollers that define 90-degree angles with the horizontal plane of Japan '536. In fact, modifying the Japan '536, as suggested by the Office, can interfere with the movement of the components of the apparatus defined in '536. Additionally, '713 achieves a clean substrate using a main and auxiliary nozzles defined above and below the top and bottom surfaces of the substrate. As the wafer is horizontal, excess fluid can be eliminated as a result of the centrifugal force. As can be appreciated, fluid applied onto a rotating wafer defined at a 90-degree angle tends to flow downwardly as a result of the gravity, causing the dislodged particles to move from an upper section of the wafer to a lower section. Thus, using the megasonic spray of '713 may not necessarily achieve a clean wafer, as asserted by '536 or '713. Accordingly, it is submitted that neither one of the cited art discloses or teaches any of

such modifications nor a solution to eliminate any negative affects if such modifications are made.


Therefore, it is respectfully submitted that independent claim 17 is patentable under 35 U.S.C. § 103(a) over any combination of the cited prior art. In a like manner, dependent claim 21 which incorporates each and every element of the respective independent claim 17 is patentable under 35 U.S.C. § 103(a) over any combination of the cited prior art for at least the same reasons discussed above.

Indication of Allowability:

Applicant acknowledges the Office's confirmation that claims 23-30 are allowed.

In view of the foregoing, Applicant respectfully submits that all of the pending claims 17-19, 21, 22, and 31 are in condition for allowance. Accordingly, a Notice of Allowance is respectfully requested. If the Examiner has any questions concerning the present Preliminary Amendment, the Examiner is kindly requested to contact the undersigned at (408) 749-6900, ext. 6913. If any additional fees are due in connection with filing this Amendment, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No. LAM2P247). A duplicate copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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